

New Hampshire.—11th.
New Jersey.—9th, 10th, 15th.
New York.—5th, 7th, 8th, 19th, 20th, 25th.
North Carolina.—5th, 7th to 11th, 13th, 14th, 15th.
Ohio.—8th to 11th, 13th, 19th, 20th, 22d.
Oregon.—9th, 10th, 16th.
Pennsylvania.—5th, 9th, 11th.
South Carolina.—11th, 12th, 14th, 15th.
Tennessee.—5th, 7th to 10th.
Texas.—4th, 5th, 6th, 9th to 13th.
Utah.—8th, 19th.
Vermont.—15th.
Virginia.—7th to 10th, 13th, 15th.
Washington Territory.—6th, 7th, 8th, 11th, 12th, 17th.
Wisconsin.—7th, 8th, 9th, 14th.
Wyoming.—19th.

MIRAGES.

Portsmouth, North Carolina, 13th.—Portions of Hyde county, from twenty to twenty-five miles distant, and not ordinarily visible from this place, were plainly seen on this date, apparently elevated above the horizon.

Mirages were also observed at Indianola, Texas, on the 14th, 16th, 27th, 28th; at Salina, Kansas, from the 27th to 30th; and at Pretty Prairie, Kansas, on the 30th.

Captain Robert B. Quick, of the s. s. "Lone Star," from N. 38° 52', W. 74° 08' on the 22d, to N. 25° 27', W. 80° 03' on the 26th, reports that every light and object sighted were seen twice the distance at which they were usually visible. Hatteras light was seen a distance of thirty-five miles; objects on land, twenty miles; Frying Pan Lightship, twenty miles; and Canaveral Light, over thirty miles.

MISCELLANEOUS PHENOMENA.

A peculiar appearance of the sky preceding sunrise and following sunset has been reported by observers in nearly every part of the United States. This phenomenon has also been extensively observed in other countries.

Mr. A. C. Ranyard, in an article published in "Knowledge," of December 7, 1883, relative to its appearance in Europe, Asia, and Africa, ascribes the cause to meteoric dust.

The following reports have been received from the regular and voluntary observers of the Signal Service in the various states and territories:

Alabama.—Auburn, Lee county, 27th: the past week has been characterized by wonderfully brilliant and beautiful sunsets.

California.—Oakwood, San Diego county: from the 24th to 30th the sun was surrounded by a whitish glare during the day, and the sunset displays were of more or less intensity. The same conditions were observed here on October 18th.

Hydesville, Humboldt county: the mornings and evenings, from the 24th to 30th, were characterized by very brilliant twilight. In the morning the sky became red about an hour, or an hour and a half, before sunrise, and gradually faded as the sun arose. The evening twilights were more remarkable than those of the mornings. The sky began to grow red just after sunset, the color increasing in brilliancy for about an hour. On the evening of the 24th the southern sky was so bright as to resemble the light from a great fire.

Oakland, Alameda county: on the morning of the 25th, when the twilight first appeared, it gave out in the eastern sky a luminous, silvery color, gradually fading toward the horizon. As the sun came up the light rose nearer to the zenith, changing to a reddish pink and forming a crescent, beneath which was a pale green color of an apparent diameter of 60°. As the sun arose, the colors changed to a yellowish-red. The evening twilight was one of the most remarkable displays ever witnessed at this place. The succeeding days—from the 26th to 30th—were much the same, the crimson and lurid colors continuing long after sunset and before sunrise.

Salinas City, Monterey county, 30th: the red sunsets, so fre-

quently commented upon by the newspapers, have been noticeable here, also, with the same splendor as observed elsewhere. The sky was brightest at about ten or fifteen minutes after sunset, when everything was brilliantly lighted up by it.

Poway, San Diego county: a very brilliant crimson glow in the southwestern sky was observed here for several evenings near the close of the month.

Colorado.—Pueblo, Pueblo county, 30th: the eastern sky at sunrise, and just before, has been remarkably brilliant with a variety of colors. At sunset the display of rich golden colors over the mountain tops were so striking in their resemblance to a vast conflagration in the valley beyond as to occasion much comment.

Fort Collins, Larimer county: brilliant sunsets were observed here on the evenings from the 24th to 27th, and a very unusual appearance of the eastern sky preceded the rising sun on those dates.

Connecticut.—Watertown, New London county, 28th: very remarkable sunsets were observed here for several evenings preceding this date, the glow frequently growing brighter for some time after sunset. The sunset of the 28th exceeded in brilliancy any previously observed, the light resembling the appearance of a large fire in the distance.

Dakota.—Rapid City, Teton county, 30th: the western sky at sunset of this date was of a very bright reddish color.

Huron, Beadle county: just before sunrise of the 28th, and after sunset of that date, a peculiar appearance of the sky was very noticeable here.

Florida.—Archer, Alachua county: very brilliant sunsets were observed here on the 15th and from the 22d to 30th.

Georgia.—Andersonville, Sumter county: at sunset of the 27th the western sky was of a bright orange color, extending from the horizon to an altitude of about 30°.

Forsyth, Monroe county: throughout the month the sky before and after sunset presented a beautiful appearance. On the evening of the 29th, just after sunset, streamers shot upward from the west, and the sky in that quarter resembled the aurora borealis.

Illinois.—Morrison, Whiteside county: lurid sunsets were observed here on the 26th, 27th, and 28th; and lurid sunrises on the 27th and 28th.

Swanwick, Perry county: a very remarkable sunset was observed here on the 27th. The sky was colored with various shades of red, which continued until darkness ensued. The same phenomenon was observed on several evenings and also before sunrise.

Springfield: peculiar colors were noticed in the sky accompanying sunrise and sunset from the 26th to 28th.

Indiana.—Vevay, Switzerland county: a beautiful golden sunset was observed here on the evening of the 27th.

Griffin Station, Rush county: the evenings of the 27th and 28th were noted for brilliant sunsets, that on the last mentioned date being especially bright.

Sunman, Ripley county: on the 28th the sky was overspread with a crimson glow resembling a bright aurora. The same phenomenon was observed on several evenings following.

Laconia, Harrison county, 30th: very brilliantly illuminated sunsets and sunrises were almost daily observed during the last three weeks.

Iowa.—Des Moines: on the 27th and 28th a remarkable redness was observed over the entire eastern sky about one hour before sunrise. The same was observed on the evenings of the same dates about one hour after sunset.

Manchester, Delaware county: three sunsets were observed here, viz: on the 26th, 27th, and 28th, which were remarkable on account of the brilliant colors in the western sky.

Humboldt, Humboldt county: before sunrise and after sunset on the 26th, 27th, and 28th, the sky assumed unusual brightness.

Muscatine, Muscatine county: remarkably bright sunsets were observed here on the 24th, 26th, 27th, and 28th.

Kansas.—Manhattan, Riley county: after sunset on the

evening of the 23d, the horizon from the southwest to northwest was of an unusually bright red color. Similar conditions were also noted on the 26th.

Clay Centre, Clay county: the western sky remained colored for an unusual length of time after sunset, from the 24th to 27th. Before sunrise, on those dates, a similar phenomenon was observed in the eastern sky.

Wellington, Sumner county: a phenomenal redness of the evening sky, and also the bright colors of the morning twilight, were prevalent from the 15th to 30th. On each of these dates the twilights were of dense reddish color, and continued from thirty to sixty minutes after sunset. The morning twilight also appeared bordered with a red or orange band above which the twilight curve extended toward the zenith, with a yellow and afterwards green zone.

Kentucky.—Frankfort, Franklin county: the month of November has been characterized by bright auroral lights at sunrise and sunset, the horizon being of a yellowish white color.

Louisville: the most notable and striking phenomenon of the month was the peculiar colors of the sky from the 15th to 30th. The light, at first a bright golden color, changed to bright and dull red colors. These conditions were observed both before the rising and after the setting of the sun.

Maine.—Cornish, York county: unusually brilliant sunsets were noted here on the 27th, 28th, and 29th.

Maryland.—Cumberland county: remarkably bright sunsets were observed on the 27th and 28th; the same colors appearing in the early sky before sunrise of the latter date.

Massachusetts.—Fall River, Bristol county: a phenomenal afterglow, resembling the light from an immense fire, was observed for about three-quarters of an hour after sunset on the 27th.

Blue Hill, Norfolk county: a deep red glow was observed for half an hour before sunrise and after sunset on the 27th and 28th. The same phenomenon was reported by many observers throughout Massachusetts.

Michigan.—Grand Rapids, Kent county: on the 27th the whole sky was of a fiery red color before sunrise. The sunset of the same date was especially remarkable, the western sky presenting a variety of colors and shades, beginning with an iron-gray at the horizon and gradually changing into yellow pink, purple, and red colors.

Thornville, Lapeer county: the sky presented a very red appearance before sunrise and after sunset from the 25th to 29th.

Missouri.—Saint Louis, 30th: since the 23d the southwestern sky presented a peculiar appearance for about two hours after sunset. The bright colors extended from the horizon to the zenith and frequently beyond. The sunrises were usually preceded by the same conditions.

Nebraska.—Omaha: bright red illuminations accompanied the rising and setting sun on the 27th, 28th, and 29th.

Mr. S. R. Thompson, director of the "Nebraska Weather Service," reports as follows: "Nearly all observers mentioned the beautiful red glow, lasting about an hour, at sunrise and sunset. This appearance has been noticed all over the world for the last week in November.

Nevada.—Carson City, Armstrong county: from the 18th to 30th the most beautiful sunsets were observed here, the sky being of a rose color for an hour after sunset. The sunset of the 28th was especially remarkable. On that evening the light (of a yellowish color) was so bright as to cast shadows.

New Hampshire.—Grafton, Grafton county: an unusual redness in the sky was noticed on the evenings of the 25th and 27th. At 6 p. m., or about one hour and a half after sunset, a bright reddish color extended to an altitude of 60° and covered the entire horizon.

New York.—Factoryville, Tioga county: from the 24th to 27th the eastern sky was illuminated to an unusual degree; the same peculiarity was also seen in the western sky after sunset on the same dates. This phenomenon was generally observed throughout New York.

North Carolina.—Brevard, Transylvania county: remarka-

bly bright twilights were observed here on the evenings of the 28th and 29th.

Ohio.—North Lewisburg, Champaign county: from the 26th to 29th a variety of bright colors illuminated the sky before sunrise and after sunset. Numerous stations throughout Ohio report having observed the same peculiarities preceding sunrise and following sunset.

Pennsylvania.—Leetsdale, Allegheny county: on the 28th a very remarkable sunset was observed. The sky was of a bright red color, resembling the light from an extensive fire. The light extended from the western horizon overhead nearly to the northeastern horizon.

Dyberry, Wayne county: from the 23d to the 28th bright colors appeared in the sky preceding sunrise and following sunset.

Texas.—Cleburne, Johnson county: beautiful morning and evening twilights were seen here from the 26th to 30th.

Galveston: a beautiful luminous display in the heavens before sunrise and after sunset was observed here on the 27th.

Virginia.—Variety Mills, Nelson county: the extraordinary colors visible in the eastern and western skies were observed on nearly every fair day during the month. They were most conspicuous on the 27th and 28th.

Washington territory.—Tatoosh Island: on the evening of the 24th, at about two hours after sunset, the sky became illuminated, at first by a brassy color about 10° above the horizon, gradually changing to deep red and extending from northwest to southwest, and to an altitude of 55°. The light, as it was reflected from the ocean, gave the latter a very weird appearance, and although the remainder of the sky was densely overcast, the light was sufficient to light up the island brightly.

Wisconsin.—Sussex, Waukesha county: very peculiar sunsets were observed on the 26th and 27th, the sky being illuminated with a variety of colors which continued for one and one-half hours after sunset.

Mr. C. Todd, C. M. G., international co-operating observer at Adelaide, South Australia, reports that during the last two weeks of September, and throughout October, an unusual phenomenon was observed in the western sky, consisting of the same peculiarities as reported by the observers throughout the United States.

Mr. T. E. Whitfield, of Corinth, Mississippi, has forwarded to the Chief Signal Officer a diagram, showing a very peculiar arrangement of clouds, as observed by him at that place on November 24th. The phenomenon was observed at 7 p. m., when twelve well-defined bands of dark clouds were seen diverging from a point beneath the "north" star. Four of these bands were east of the star named, and the remaining eight were west of it, those near the western limit of the display being shorter and less inclined toward the horizon. The lower ends of the seven largest clouds terminated abruptly at an equal distance from a common point near the northern horizon, leaving an almost perfect semi-circle of clear sky beneath, from which the bands radiated like the spokes of a wheel.

SUNSETS.

The characteristics of the sky, as indicative of fair or foul weather for the succeeding twenty-four hours, have been observed at all Signal Service stations. Reports from one hundred and fifty-six stations show 4,573 observations to have been made, of which six were reported doubtful; of the remainder, 4,567, there were 3,973, or 87.0 per cent., followed by the expected weather.

SUN SPOTS.

Mr. William Dawson, of Spiceland, Indiana, reports sun spots as follows:

1st.—Nine groups, ninety-five spots; much faculae.

4th.—Eight groups, eighty spots.

9th.—Six groups, thirty-five spots; air very poor.

11th.—Five groups, sixty spots; one large spot in the southeastern quadrant visible to the naked eye; air very good.

13th.—Five groups, sixty-eight spots; one large spot south of the centre plainly seen with the naked eye.

17th.—Seven groups, ninety-five spots; two spots visible to the naked eye.

24th.—Nine groups, sixty-three spots; a very condensed group near the west edge.

28th.—Four groups, twenty-six spots, most of which were near the centre of the sun; air very poor.

Mr. H. D. Govey, of North Lewisburg, Ohio, reports that sun spots were observed by him on all clear days during the month.

The following record of sun spots for the month of November, 1883, made at the Lawrence observatory, Amherst, Massachusetts, has been forwarded by Professor David P. Todd:

Date— Oct., 1883.	No. of new		Disappeared by solar rotation.		Reappeared by solar rotation.		Total No. visible.		Remarks.
	Gr'ps	Spots	Gr'ps	Spots	Gr'ps	Spots	Gr'ps	Spots	
1, 3 p. m.	2	10½	0	0	2	10½	8	50½	
4, 10 a. m.	0	0	0	5	0	0	8	35½	
5, 10 a. m.	0	10½	1	1	0	0	7	45½	
5, 3 p. m.	0	5	0	0	0	0	7	50½	
6, 4 p. m.	0	0	1	10½	0	0	0	35½	
7, 3 p. m.	0	0	1	5	0	0	5	25½	
8, 10 a. m.	2	5	1	5	2	5	6	25½	
12, 11 a. m.	0	15½					4	25½	One of spots quite large.
14, 3 p. m.	1	5					4	30½	Do.
15, 9 a. m.	0	5	0	0	0	0	4	35½	
16, 9 a. m.	2	7	0	0	0	0	6	40½	
17, 12 m.	1	10½	0	0	1	0	7	50½	
17, 3 p. m.	0	0	0	5	0	2	7	60½	
18, 1 p. m.	0	15½	0	10½	0	0	6	50½	
19, 2 p. m.	0	0	1	0	0	0	6	30½	
25, 12 m.	4	15½					3	20½	
26, 9 a. m.	0	0	2	12½	0	0	4	20½	
27, 12 m.	1	1	0	0	0	0	3	15½	
28, 10 a. m.	0	0	0	0	0	0	3	15½	
29, 11 a. m.	0	5	0	0	0	0	3	20½	

* Faculae were seen at the time of every observation. † Approximated.

METEORS.

Allison, Decatur county, Kansas.—A brilliant meteor was seen here at 7 p. m. of the 1st, which, before disappearing, exploded into many pieces.

Nephi, Juab county, Utah.—A large meteor was seen at this place on the 1st, moving in a northwesterly direction, and exploding when at an altitude of 20°.

Weldon, Halifax county, North Carolina.—A meteor was observed here at 6.55 p. m. of the 1st, and moving westward from the zenith it exploded after passing the "milky way."

Pensacola, Florida, 3d.—At 11.05 p. m. of this date a large and brilliant meteor of whitish color was observed in the western sky. It moved directly downward, and exploded when at an altitude of 25°. At 9.20 p. m. of the 7th, another meteor was seen in the southeastern sky, and moving westward it exploded when at an altitude of 30°.

Augusta, Georgia.—A meteor was observed here at 8.30 p. m. of the 4th. It made its appearance in the southwestern sky at an altitude of 70°, and, moving directly downward, disappeared at an altitude of 25°.

Provincetown, Massachusetts.—A large and brilliant meteor was observed in the southern sky, at 9.40 p. m., of the 9th.

New Haven, Connecticut.—A meteor, apparently as large as the full moon, was seen in the northern sky at 2 a. m., of the 13th.

Cooperstown, Otsego county, New York.—A meteor of unusual size and brightness, was observed here at 9.10 p. m., of the 20th, passing from the northwestern to the southwestern sky.

Murfreesborough, Rutherford county, Tennessee.—A large meteor was observed here at 7.20 p. m., of the 23d. It was first seen in the square of "Andromeda," and, moving westward, disappeared when within 30° of the horizon.

Milan, Gibson county, Tennessee.—A large meteor was seen here on the 23d at 6 p. m., at an altitude of about 15°, moving in a southerly direction.

Meteors worthy of less remark were observed in the several states and territories as follows:

Arkansas.—Lead Hill, 8th, 11th, 23d, 26th, 28th, 29th.

Connecticut.—Bethel, 25th.

Dakota.—Alexandria, 1st, 10th, 12th, 28th.

Florida.—Archer, 6th.

Illinois.—Anna, 1st; Bunker Hill, 2d, 4th; Morriston, 3d, 29th.

Indiana.—Vevay, 1st, 4th, 14th, 15th.

Iowa.—Manchester, 2d; Davenport, 15th, 28th; Burlington, 30th.

Kansas.—Fort Scott, 6th, 16th, 18th, 30th; Salina, 12th, 14th; Yates Centre, 15th; Manhattan, 16th, 21st; Clay Centre, 18th, 21st.

Maryland.—Woodstock, 1st.

Massachusetts.—Fall River, 3d, 17th, 25th; Somerset, 4th; Rowe, 25th.

Nebraska.—Clear Creek, 2d, 18th.

New Hampshire.—Grafton, 26th.

New Jersey.—Readington, 2d, 7th; South Orange, 3d.

New York.—Humphrey, 5th.

North Carolina.—Wilmington, 5th.

Ohio.—Westerville, 4th.

Oregon.—Astoria, 2d.

Pennsylvania.—Erie, 4th, 27th.

Rhode Island.—Block Island, 18th.

Tennessee.—Milan, 23d.

Texas.—Brownsville, 5th; Palestine, 6th, 8th.

Utah.—Nephi, 4th.

Virginia.—Fort Myer, 1st.

Washington.—Fort Canby, 2d, 13th.

Wisconsin.—Franklin, 18th; Manitowoc, 19th.

EARTHQUAKES.

Salt Lake City, Utah, 5th.—A shock of earthquake was felt at Cove Creek, in this territory, on the 4th. No damage was done.

Poway, San Diego county, California.—A slight shock of earthquake occurred here at 6.15 p. m. of the 11th.

The following extract is taken from the "New York Daily Advertiser" of November 26th, 1883:

PANAMA, UNITED STATES OF COLOMBIA, November 17th.—Slight earthquake shocks were felt on the isthmus on the 13th instant, and a week earlier other shocks occurred. They were accompanied by loud detonations similar to those heard in the same districts at the time of the Java earthquakes in August last. These districts are all in the latitude, and are not far from the Leon and Lucio region in which a number of mud volcanoes have sprung into existence.

From the "New York Maritime Register" of November 21st, 1883, the following is taken:

Several vessels of recent arrival at San Pedro, California, report having experienced heavy shocks of earthquake off Cape Mendocino, California.

MIGRATION OF BIRDS.

Geese flying southward.—Red Bluff, California, 16th; Fort Sully, Dakota, 3d, 4th, 8th; Muscatine, Iowa, 6th, 13th; Yates Centre, Kansas, 5th, 6th; Eastport, Maine, 14th, 16th; Provincetown, Massachusetts, 10th; Somerset, Massachusetts, 10th, 12th, 14th; Saint Louis, Missouri, 25th; Clear Creek, Nebraska, 11th, 12th; Ardenia, New York, 16th; Humphrey, New York, 8th; Portland, Oregon, 19th, 20th; Leetsdale, Pennsylvania, 2d; Chambersburg, Pennsylvania, 11th; Block Island, Rhode Island, 19th; Point Judith, Rhode Island, 13th, 14th, 17th, 19th; Indianola, Texas, 16th; Palestine, Texas, 5th, 6th; Johnstown, Virginia, 30th. Flying northward.—Cape Mendocino, California, 25th; Sanford, Florida, 6th; Cairo, Illinois, 25th; Fort Madison, Iowa, 21st, 30th; Omaha, Nebraska, 30th; Ashwood, Tennessee, 27th. Flying eastward.—Edgington, Illinois, 4th. Flying westward.—New Bedford, Massachusetts, 18th. At San Francisco, California, geese were numerous during the entire month.

Ducks flying southward.—Little Rock, Arkansas, 11th; San Francisco, California, 30th; Fort Scott, Kansas, 5th, 25th; Yates Centre, Kansas, 5th; Clear Creek, Nebraska, 8th, 11th.

12th; Fort Macon, North Carolina, 12th; Leetsdale, Pennsylvania, 1st; Point Judith, Rhode Island, 13th, 14th; Indianola, Texas, 28th. *Flying northward*.—Edgington, Illinois, 3d, 7th, 8th, 10th, 24th; Yates Centre, Kansas, 25th; Mackinaw City, Michigan, 16th. *Flying eastward*.—Little Rock, Arkansas, 11th, 12th; Fort Scott, Kansas, 4th. *Flying westward*.—Yates Centre, Kansas, 23d.

Cranes flying southward.—Yates Centre, Kansas, 6th; West Leavenworth, Kansas, 1st; Portland, Oregon, 15th.

PRAIRIE AND FOREST FIRES.

Cantonment, Indian Territory.—Prairie fires prevailed in this vicinity from the 22d to the 26th. On the latter date they were very destructive near Red Hills.

Fort Reno, Indian Territory.—Prairie fires occurred here from the 1st to 10th, 12th, 13th, 16th to 20th, 22d to 25th; those occurring on the last mentioned dates caused much damage, especially to the telegraph lines.

Prairie and forest fires also occurred at the following stations: North Platte, Nebraska, 19th, 21st, 23d, 27th to 30th; Dodge City, 26th; Fort Elliot, 24th, 25th; Huron, Dakota, 2d; Fort Meade, Dakota, 1st, 30th; Fort Randall, Dakota, 18th, 19th; Lead Hill, Arkansas, 12th, 17th.

POLAR BANDS.

Lead Hill, Arkansas, 5th, 6th, 11th, 16th, 23d, 26th to 29th.

Los Angeles, California, 1st, 2d, 5th, 6th, 25th.

Archer, Florida, 3d, 12th, 14th, 17th.

Riley, Illinois, 2d, 3d, 30th.

Guttenburg, Iowa, 24th.

Yates Centre, Kansas, 7th, 8th.

Gardiner, Maine, 5th, 15th.

Somerset, Massachusetts, 13th, 27th.

Clear Creek, Nebraska, 4th, 25th, 29th, 30th.

Wauseon, Ohio, 2d, 7th, 29th.

Pittsburg, Pennsylvania, 11th.

Nashville, Tennessee, 5th, 7th, 8th.

Woodstock, Vermont, 15th, 25th.

WATER-SPOUTS.

New Haven, Connecticut.—A water-spout, one hundred feet in height, was seen off Nonauk, Connecticut, on the afternoon of the 12th.

The schooner "Ella A. Warner," at 3 p. m. of November 22d, when in N. 22° 45', W. 69° 13', saw two whirlwinds passing from eastward and throwing water twenty feet high.

The s. s. "Neckar," between N. 46° 55', W. 39° 07', and N. 45° 07', W. 45° 52', on November 27th, passed several water-spouts of considerable dimensions.

ZODIACAL LIGHT.

Little Rock, Arkansas, 1st, 25th to 29th.

Los Angeles, California, 19th, 22d to 25th.

Pensacola, Florida, 1st, 30th.

Humboldt, Iowa, 23d, 26th, 27th, 28th.

Cambridge, Massachusetts, observed, 16th, 17th, 18th, 25th, 27th, 28th; suspected, 30th.

Toledo, Ohio.—26th to 29th.

Fallsington, Pennsylvania, 2d.

Haverford College, Pennsylvania, 5th, 6th, 8th, 12th.

Nashville, Tennessee, 25th.

Palestine, Texas, 1st, 6th, 16th.

DROUGHT.

Bangor, Maine, 3d.—The mills at this place, which have been shut down for several weeks on account of scarcity of water, resumed operations on this date.

Cape Lookout, North Carolina, 27th.—Owing to the continued drought, all of the cisterns in this vicinity have become dry, and scarcity of water exists.

Jacksonville, Florida, 30th.—Rain is much needed in this vicinity for the winter vegetables.

SAND STORMS.

Fort McDowell, Arizona, 12th, 29th.

Maricopa, Arizona, 12th.

San Carlos, Arizona, 1st, 4th, 12th, 29th.

Willcox, Arizona, 29th.

Fort McDermitt, Nevada, 24th.

ERRATA.

In the September, 1883, REVIEW, under "deviations from mean temperature," on page 206, the mean temperature at Dyberry, Wayne county, Pennsylvania, should have been 4° below the normal, and not 4° above the normal as published.

The meteorological summary forwarded by the director of the Indiana Weather Service and published in the September REVIEW under "Notes and extracts," was for September, 1883, and not for September, 1882, as stated.

NOTES AND EXTRACTS.

WEATHER REPORT FOR NOVEMBER, 1883.

Prepared by Prof. F. H. Snow, of the University of Kansas, from observations taken at Lawrence.

Only two Novembers on our sixteen years record have had more sunshine than this. The temperature was above the average. The rainfall and humidity were below the average, but there was an unusual number of morning fogs.

The mild weather of the past three Novembers has been in marked contrast with the severe winter temperature of November, 1880, during the last week of which month a large crop of ice was harvested at Lawrence.

Mean temperature.—42° 77, which is 3° 55 above the November average. The highest temperature was 74°, on the 25th; the lowest was 14° 5, on the 14th, giving a range of 59° 5. Mean temperature at 7 a. m., 36° 57; at 2 p. m., 51° 97; at 9 p. m., 41° 27. The first severe frost of the autumn occurred on the 1st, twelve days later than its average date. There were only four winter days during the month, days whose mean temperature was below the freezing point. There were sixteen such days in November, 1880.

Rainfall.—0.73 inch, which is 1.36 inches below the November average. Rain fell on two days. There were two thunder-showers. The entire rainfall for the eleven months of 1883, now completed, has been 39.88 inches, which is 7.33 inches above the average for the same months in the preceding fifteen years.

Mean Cloudiness.—38.22 per cent. of the sky, the month being 9.38 per cent. clearer than usual. Number of clear days (less than one-third cloudy) eighteen; half clear (from one to two-thirds cloudy) five; cloudy (more than two-thirds) seven. There were six entirely clear days, and only one entirely cloudy. Mean cloudiness at 7 a. m., 47.67 per cent; at 2 p. m., 37.67 per cent; at 9 p. m., 29.33 per cent.

Wind.—Southwest, forty-four times; northwest, eighteen times; southeast, ten times; northeast, seven times; south, five times; north, four times; west, once; east, once. The total run of the wind was 12,692 miles, which is six hundred and sixty-two miles above the November average. This gives a mean daily velocity of four hundred and twenty-three miles, and a mean hourly velocity of seventeen and sixty-three hundredths miles. The highest velocity was fifty-eight miles an hour on the 25th.

Barometer.—Mean for the month, 29.147 inches; at 7 a. m., 29.190 inches; at 2 p. m., 29.131 inches; at 9 p. m., 29.120 inches; maximum, 29.799 inches on the 12th; minimum, 28.646 inches on the 25th; monthly range, 1.153 inches.

Relative Humidity.—Mean for month, 63.6; at 7 a. m., 76.5; at 2 p. m., 45.3; at 9 p. m., 69.9; greatest, one hundred on the 8th and 23d; least, thirteen, on the 17th. There were five fogs.

The following table furnishes a comparison with the fifteen preceding Novembers:

November.	Mean temperature.	Maximum temperature.	Minimum temperature.	Winter days.	Rain (inches).	Snow (inches).	Rainy days.	Thunder-storm.	Mean cloudiness.	Humidity.	Number of fogs.	Miles of wind.	Mean barometer.	Maximum barometer.	Minimum barometer.
1868	37.99	73.0	17.0	12	3.54	6.0	0	51.77	59.8	1	.....	29.201	29.660	28.880
1869	37.39	72.0	23.0	9	1.80	0.0	0	62.89	57.9	2	.....	29.111	29.447	28.500
1870	44.92	72.0	17.0	2	0.57	0.0	0	36.83	57.9	0	.....	29.151	29.605	28.658
1871	35.89	72.5	3.0	13	2.48	5.0	12	157.44	72.3	4	.....	29.106	29.548	28.641
1872	33.30	67.0	1.0	14	0.01	0.0	1	44.89	55.8	0	.....	29.174	29.779	28.650
1873	42.58	78.0	12.0	4	1.24	0.0	2	35.06	55.4	0	.....	29.129	29.540	28.593
1874	38.76	77.5	5.5	12	3.69	14.0	10	36.67	72.4	2	.....	29.164	29.677	29.267
1875	35.55	72.0	2.0	11	0.30	0.0	3	52.78	52.1	0	.....	29.132	29.677	28.182
1876	37.50	70.0	9.0	8	2.60	3.5	0	46.11	70.9	0	.....	29.171	29.814	28.775
1877	39.23	64.0	9.0	5	1.47	0.0	8	48.89	73.8	1	.....	29.169	29.642	28.797
1878	45.87	72.0	22.0	0	1.05	2.0	5	42.00	62.6	1	.....	29.198	29.137	28.535
1879	44.23	76.5	16.0	5	5.15	2.0	6	38.33	70.6	3	.....	29.194	29.137	28.756
1880	31.58	65.5	7.5	16	2.24	2.5	9	51.77	74.4	2	.....	29.205	29.791	28.782
1881	40.40	71.5	11.0	6	2.55	0.0	5	45.55	66.9	2	.....	29.156	29.656	28.599
1882	43.07	80.0	20.0	3	2.08	0.0	7	43.11	72.0	0	.....	29.241	29.549	28.779
1883	42.77	74.0	14.5	4	0.73	0.0	2	38.22	63.9	5	.....	29.147	29.795	28.646
Mean..	39.44	72.3	11.7	8	1.68	2.2	6	47.02	71.1	1	12.05	29.166	29.656	28.650	

* Below zero.